



PATENT  
Attorney Docket No. 1634-001  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Raymond F. Cracauer  
Serial No.: 09/782,702  
Filed: 02/13/01  
Entitled: Nucleic Acid Synthesizers

Group No.: 1634  
Examiner: Janell Turner

**INFORMATION DISCLOSURE  
STATEMENT TRANSMITTAL**

Assistant Commissioner for Patents  
Washington, D.C. 20231

<b>CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)</b>	
I hereby certify that this correspondence (along with any referred to as being attached or enclosed) is, on the date shown below, being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231	
Dated: <u>August 5, 2002</u>	By: <u>Mary Ellen Waite</u> Mary Ellen Waite

Sir or Madam:

Enclosed please find an Information Disclosure Statement and Form PTO-1449, including copies of the references contained thereon, for filing in the U.S. Patent and Trademark Office.

A check for \$180.00 is also enclosed pursuant to 37 C.F.R. § 1.17(p) for filing this Information Disclosure Statement after three months as set forth in 37 C.F.R. § 1.97(c).

The Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1290. **An originally executed duplicate of this transmittal is enclosed for this purpose.**

Dated: August 5, 2002

Mary Ann Brow  
Mary Ann Brow  
Registration No. 42,363

MEDLEN & CARROLL, LLP  
101 Howard Street, Suite 350  
San Francisco, California 94105  
608/218-6900



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Re Application of: Raymond F. Cracauer

Serial No.: 09/782,702

Filed: 02/13/01

Entitled: **Nucleic Acid Synthesizers**

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Examiner: Janell Taylor

**INFORMATION DISCLOSURE STATEMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**CERTIFICATE OF MAILING UNDER 37 CFR § 1.8(a)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231, on **August 5, 2002**.

By: 

Mary Ellen Waite

Sir or Madam:

The citations listed below, copies attached, may be material to the examination of the above-identified application, and are therefore submitted in compliance with the duty of disclosure defined in 37 C.F.R. §§ 1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

The following printed publications are referred to in the body of the specification:

- U.S. Patent No. 5,472,672 to Bennan on 12/5/95
- U.S. Patent No. 5,368,823 to McGraw *et al.* on 11/29/94
- U.S. Patent No. 5,935,527 to Andrus *et al.* on 8/10/99
- U.S. Patent No. 5,865,224 to Ally *et al.* on 2/2/99
- WO99/65602

The following references were identified in a search provided by World Patent Services, Inc., Arlington VA. Primary Examiner Jill Warden was consulted by Rick Jordan of WPS for Class verification and suggested Class 422, subclasses 63, 64, 65, 67, 81, 100, 102,

104, 129, 130, 131, 134, 188 and 189. Computer searching using the EAST system was also conducted to include the EPO and JPO collection.

- U.S. Patent No. 6,280,950 ;
- U.S. Patent No. 6,270,730 ;
- U.S. Patent No. 6,264,891 ;
- U.S. Patent No. 6,126,904 ;
- U.S. Patent No. 6,171,555;
- U.S. Patent No. 6,150,102;
- U.S. Patent No. 6,096,276;
- U.S. Patent No. 6,045,755;
- U.S. Patent No. 5,792,430;
- U.S. Patent No. 5,770,157;
- U.S. Patent No. 5,580,523;
- U.S. Patent No. 5,443,791;
- U.S. Patent Publication No. 2001/0022950;
- U.S. Patent Publication No. 2001/0007644;
- U.S. Patent Publication No. 2001/0001035; and
- U.S. Patent Publication No. 2001/0000723.

Applicants have become aware of the following printed publications which may be material to the examination of this application:

- U.S. Patent No. 3,917,455;
- U.S. Patent No. 4,353,989;
- U.S. Patent No. 4,483,964;
- U.S. Patent No. 4,517,338;
- U.S. Patent No. 4,598,045;
- U.S. Patent No. 4,598,049;
- U.S. Patent No. 4,744,037;
- U.S. Patent No. 4,837,159;
- U.S. Patent No. 5,053,454;
- U.S. Patent No. 5,112,575;

- U.S. Patent No. 5,262,530;
- U.S. Patent No. 5,298,259;
- U.S. Patent No. 5,437,979;
- U.S. Patent No. 5,462,748;
- U.S. Patent No. 5,466,608;
- U.S. Patent No. 5,503,805;
- U.S. Patent No. 5,762,881;
- U.S. Patent No. 5,789,162;
- U.S. Patent No. 5,874,554;
- U.S. Patent No. 5,885,837;
- U.S. Patent No. 5,981,733;
- U.S. Patent No. 6,057,424;
- U.S. Patent No. 6,165,717;
- U.S. Patent No. 6,175,006;
- U.S. Patent No. 6,177,554;
- U.S. Patent No. 6,225,061;
- U.S. Patent No. 6,329,210;
- U.S. Patent No. 4,401,796;
- U.S. Patent No. 4,689,405;
- U.S. Patent No. 4,734,363;
- U.S. Patent No. 4,950,745;
- U.S. Patent No. 5,047,524;
- U.S. Patent No. 5,112,962;
- U.S. Patent No. 5,132,418;
- U.S. Patent No. 5,149,798;
- U.S. Patent No. 5,264,562;
- U.S. Patent No. 5,264,566;
- U.S. Patent No. 5,324,831;
- U.S. Patent No. 5,514,789;
- U.S. Patent No. 5,518,651;
- U.S. Patent No. 5,548,076;

- U.S. Patent No. 5,616,700;
- U.S. Patent No. 5,620,852;
- U.S. Patent No. 5,639,873;
- U.S. Patent No. 5,646,267;
- U.S. Patent No. 5,652,358;
- U.S. Patent No. 5,668,266;
- U.S. Patent No. 5,668,268;
- U.S. Patent No. 5,700,919;
- U.S. Patent No. 5,703,218;
- U.S. Patent No. 5,703,223;
- U.S. Patent No. 5,723,599;
- U.S. Patent No. 5,726,300;
- U.S. Patent No. 5,736,626;
- U.S. Patent No. 5,789,162;
- U.S. Patent No. 5,821,058;
- U.S. Patent No. 5,840,841;
- U.S. Patent No. 6,313,284;
- U.S. Patent No. 5,541,314
- U.S. Patent No. 5,053,454
- WO91/13084
- WO98/10857
- WO98/36829
- WO98/39099
- WO98/57181
- User's Manual ABI 3900 High Throughput DNA Synthesizer, Applied Biosystems (2001)

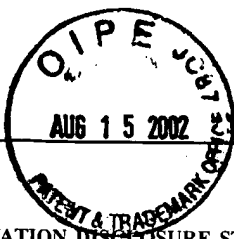
This Information Disclosure Statement under 37 C.F.R. §§ 1.56 and 1.97 is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that any one or more of these citations constitutes prior art.

Dated: August 5, 2002

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Mary Ann D. Brow  
Registration No. 42,363

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San Francisco, California 94105  
415/904-6500



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Sheet 1 of 3

FORM PTO-1449  
(Modified)U.S. Department of Commerce  
Patent and Trademark Office

Attorney Docket No.: FORS-06111

Serial No.: 09/782,702

INFORMATION DISCLOSURE STATEMENT BY APPLICANT  
(Use Several Sheets If Necessary)

Applicant: Raymond F. Cracauer

Filing Date: 02/13/01

Group Art Unit: 1634

(37 CFR § 1.98(b))

## U.S. PATENT DOCUMENTS

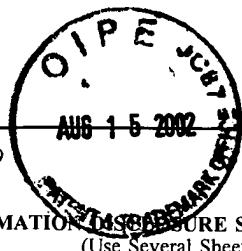
Examiner Initials	Cite No.	Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	1	5,472,672	12/5/95	Bennan	422	131	10/22/93
	2	5,368,823	11/29/94	McGraw <i>et al.</i>	422	1340	2/11/93
	3	5,935,527	8/10/99	Andrus <i>et al.</i>	422	131	4/29/93
	4	5,865,224	2/2/99	Ally <i>et al.</i>	141	130	12/20/96
	5	6,280,950	8/28/01	Lipshutz <i>et al.</i>	435	6	10/28/99
	6	6,270,730	8/7/01	McLuen <i>et al.</i>	422	131	6/16/98
	7	6,264,891	7/24/01	Heyneker <i>et al.</i>	422	64	5/18/99
	8	6,126,904	10/3/00	Zuellig <i>et al.</i>	422	130	9/5/97
	9	6,171,555	1/9/01	Cargill <i>et al.</i>	422	104	3/6/98
	10	6,150,102	11/21/00	Mills, Jr. <i>et al.</i>	435	6	5/15/98
	11	6,096,276	8/1/00	Laursen	422	103	8/14/91
	12	6,045,755	4/4/00	Lebl <i>et al.</i>	422	65	3/10/97
	13	5,792,430	8/11/98	Hamper	422	131	8/11/98
	14	5,770,157	6/23/98	Cargill <i>et al.</i>	422	99	9/18/96
	15	5,580,523	12/3/96	Bard	422	50	4/1/94
	16	5,443,791	8/22/95	Cathcart <i>et al.</i>	422	65	8/7/92
	17	6,329,210	12/11/01	Schleifer	436	518	10/29/99
	18	6,175,006	1/16/01	Andrus <i>et al.</i>	536	25.4	3/30/99
	19	6,057,424	5/2/00	Vail, III	530	333	3/24/97
	20	5,981,733	11/9/99	Gamble <i>et al.</i>	536	25.3	9/16/96
	21	5,885,837	3/23/99	Winkler <i>et al.</i>	435	91.1	10/23/96
	22	5,840,841	11/24/98	Zuckermann <i>et al.</i>	530	338	5/8/97
	23	5,541,314	7/30/96	McGraw <i>et al.</i>	536	25.31	8/2/94
	24	5,466,608	11/14/95	Lapluye <i>et al.</i>	436	86	9/7/93
	25	5,462,748	10/31/95	Lloyd <i>et al.</i>	424	484	1/14/94
	26	5,298,259	3/29/94	Lloyd <i>et al.</i>	424	486	11/5/91
	27	5,262,530	11/16/93	Andrus <i>et al.</i>	536	25.31	7/27/90
	28	5,153,319	10/6/92	Caruthers <i>et al.</i>	536	27	3/31/86
	29	5,143,418	7/21/92	Caruthers <i>et al.</i>	536	27	6/18/94
	30	5,112,575	5/12/91	Whitehouse <i>et al.</i>	422	116	2/14/91
	31	5,047,524	9/10/91	Andrus <i>et al.</i>	536	27	12/21/88
	32	4,744,037	5/10/88	Niina <i>et al.</i>	364	497	7/15/85
	33	4,598,049	7/1/86	Zelinka <i>et al.</i>	435	287	8/31/83

Examiner:

Date Considered:

EXAMINER:

Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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FORM PTO-1449  
(Modified)

U.S. Department of Commerce  
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Attorney Docket No.: FORS-06111

Serial No. 09/782,702

**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**  
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Applicant: Raymond F. Cracauer

Filing Date: 02/13/01

Group Art Unit: 1634

(37 CFR § 1.98(b))

**U.S. PATENT DOCUMENTS**

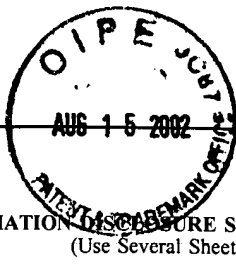
Examiner Initials	Cite No.	Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	34	4,517,338	5/14/85	Urdea <i>et al.</i>	525	54.11	7/13/84
	35	4,483,964	11/20/84	Urdea <i>et al.</i>	525	54.11	6/20/83
	36	4,458,066	7/3/84	Caruthers <i>et al.</i>	536	27	3/24/81
	37	4,353,989	10/12/82	Bender <i>et al.</i>	435	287	1/19/81
	38	6,177,554	1/23/01	Woo <i>et al.</i>	536	23.1	6/5/95
	39	5,736,626	4/7/98	Mullah <i>et al.</i>	536	25.3	1/29/96
	40	5,723,599	3/3/98	Klem <i>et al.</i>	536	25.3	3/22/95
	41	5,703,218	12/30/97	Urdea <i>et al.</i>	536	23.1	4/13/95
	42	5,668,268	9/16/97	Tang <i>et al.</i>	536	25.3	11/27/95
	43	5,652,358	7/29/97	Pfleiderer <i>et al.</i>	536	25.3	11/3/94
	44	5,639,873	6/17/97	Barascut <i>et al.</i>	536	25.3	8/4/94
	45	5,518,651	5/21/96	Reddy <i>et al.</i>	252	193	6/8/94
	46	5,264,562	11/23/93	Matteucci	536	23.1	4/24/91
	47	4,950,745	8/21/90	Ishido <i>et al.</i>	536	58	6/27/88
	48	6,313,284 B1	11/6/01	Kwiatkowski <i>et al.</i>	536	25.3	3/30/00
	49	6,225,061 B1	5/1/01	Becker <i>et al.</i>	435	6	3/10/99
	50	6,165,717	12/26/00	Dower <i>et al.</i>	435	6	5/13/98
	51	5,874,554	2/23/99	Gamble <i>et al.</i>	536	22.1	12/13/96
	52	5,789,162	8/4/98	Dower <i>et al.</i>	435	6	6/7/95
	53	5,726,300	3/10/98	Klem <i>et al.</i>	536	25.34	6/15/94
	54	5,703,223	12/30/97	Wickstrom <i>et al.</i>	536	25.33	9/2/94
	55	5,700,919	12/23/97	Seliger <i>et al.</i>	536	22.1	1/10/95
	56	5,668,266	9/16/97	Ruth	536	25.3	5/12/95
	57	5,646,267	7/8/97	Stec <i>et al.</i>	536	25.33	6/5/95
	58	5,620,852	4/15/97	Lin <i>et al.</i>	435	6	10/31/94
	59	5,616,700	4/1/97	Reddy <i>et al.</i>	536	25.3	11/18/93
	60	5,548,076	8/20/96	Froehler <i>et al.</i>	536	25.34	8/13/93
	61	5,514,789	5/7/96	Kempe	536	25.4	4/21/94
	62	5,324,831	6/28/94	Marquez <i>et al.</i>	536	25.3	4/6/88
	63	5,264,566	11/23/93	Froehler <i>et al.</i>	536	25.34	4/26/90
	64	5,149,798;	9/22/92	Agrawal <i>et al.</i>	536	27	4/6/89
	65	5,112,962	5/12/91	Letsinger <i>et al.</i>	536	27	11/9/90

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Sheet 3 of 3

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Applicant: Raymond F. Cracauer

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Group Art Unit: 1634

(37 CFR § 1.98(b))

## U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	66	4,734,363	3/29/88	Dattagupta <i>et al.</i>	435	91	11/27/984
	67	4,689,405	8/25/98	Frank <i>et al.</i>	536	27	1/4/84
	68	4,401,796	8/30/83	Itakura	535	340	4/30/81
	69	3,917,455	11/4/75	Bak <i>et al.</i>	23	253	5/10/74
	70	4,837,159	6/6/89	Yamada	436	45	9/17/85
	71	5,503,805	4/2/96	Sugarman <i>et al.</i>	422	131	11/2/93
	72	5,437,979	8/1/95	Rampal <i>et al.</i>	435	6	8/24/92
	73	5,762,881	6/9/98	Harness <i>et al.</i>	422	132	10/29/96
	74	4,598,045	7/1/86	Masover <i>et al.</i>	435	34	2/19/85
	75	5,053,454	10/1/91	Judd	525	54.11	2/15/89

## U.S. PATENT APPLICATION PUBLICATION

Examiner Initials	Cite No.	Publication Number	Publication Date	Applicant / Patentee	Class	Subclass	Filing Date
	76	2001/0022950	9/20/01	Hall <i>et al.</i>	422	131	5/18/01
	77	2001/0007644	7/12/01	McLuen <i>et al.</i>	422	131	12/19/00
	78	2001/0001035	5/10/01	McLuen <i>et al.</i>	422	100	12/19/00
	79	2001/0000723	5/3/01	McLuen <i>et al.</i>	422	100	12/19/00

## FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

		Document Number	Publication Date	Country / Patent Office	Class	Subclass	Translation	
							Yes	No
	80	WO99/65602	23 Dec. 99					
	81	WO 00/56445	28 Sept. 00					
	82	WO 91/13084	5 Sept. 91					
	83	WO 98/36829	27 Aug. 98					
	84	WO 98/39099	11 Sept. 98					
	85	WO 98/57181	17 Dec. 98					
	86	WO 98/10857	19 Mar. 98					

## OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

87	User's Manual ABI 3900 High Throughput DNA Synthesizer, Applied Biosystems (2001)
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Examiner:

Date Considered:

EXAMINER:

Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/04398

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) : B01L 3/00, 11/00, 9/00; B01J 8/18; C12N 15/00

US CL : 422/102, 103, 104, 131, 135, 138, 140, 305; 935/88

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 422/102, 103, 104, 131, 135, 138, 140, 305; 935/88

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Extra Sheet.**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,503,805 A (SUGARMAN et al.) 02 April 1996), see entire document.	1-25
Y,P	US 5,665,975 A (KEDAR et al.) 09 September 1997, see entire document.	1-25
Y,P	US 5,609,826 A (CARGILL et al.) 11 March 1997, see entire document.	1-25

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*B* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

28 MAY 1998

Date of mailing of the international search report

16 JUL 1998

Name and mailing address of the ISA/US  
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Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JOYCE TUNG

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/04398

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS

search terms: combinatorial libraries, agitator, gas lines, liquid lines, manifold, heat exchanger, reaction vessels.  
synthesizer, oligonucleotide, polypeptide